Observations of hunting behaviour in an urban predator: the domestic Dog *Canis familiaris*

Graham R. Fulton

School of Veterinary and Life Sciences, Murdoch University, South Street Murdoch, Western Australia, 6150, Australia. grahamf2001@yahoo.com.au

ABSTRACT

Two different hunting methods, used by domestic Dogs *Canis familiaris*, are described involving attacks on an Orange-footed Scrubfowl *Megapodius reinwardt* and Silver Gull *Chroicocephalus novaehollandiae*. The two observations were recorded in widely different habitats: one occurred in a botanical garden and the other on a beach. The two dogs adapted their behaviours for the habitat and the particular challenges presented. One dog used waves in a beach environment, which aided concealment and increased its momentum when springing at gulls. The other dog followed a dry ephemeral stream relying on a combination of scent-tracking and speed to attack the scrubfowl. Both attacks were unsuccessful, although human intervention in the latter may have affected the outcome. The widely differing methods show that dogs are capable of adapting their hunting behaviour to suit particular situations.

http://dx.doi.org/10.7882/AZ.2014.009

Introduction

Dogs and Humans *Homo sapiens* are thought to have been closely associated for long time, evidence of domestication in dogs has been dated to ~33,000 years ago (Ovodov *et al*. 2012). The present domesticated Dog *Canis familiaris* was most likely domesticated from the Grey Wolf *C. lupus*, in East Asia about 15,000 years ago (Savolainen *et al*. 2002); subsequently the domesticated dog and has spread around much of the world due to its association with humans (Serpell 1995; Hughes and Macdonald 2013). Most of the current dog breeds (more than 350) have arisen over the last few hundred years and have been selectively and artificially bred to fill many functions, resulting in them showing more behavioural and morphological variations than any other animal (Spady and Ostrander 2008). Dogs are known to kill other animals in surplus to their dietary requirements (Kruuk 1972) an activity exacerbated by the spread of water in Australia (Short *et al*. 2002).

While the predatory threat posed by dogs is not new, the descriptions of attacks by dogs are not as common in the literature as they might be. Cameras and video monitoring are widely used methods for identifying predators (e.g., Fulton 2006a). However, they cannot provide information from outside their field-of-view, nor monitor animals as they move through the landscape (Fulton 2006b). Direct observations can capture the peripheral information that surrounds an event, placing the event in a context, which may supply spatial, temporal and behavioural data (Fulton 2006b). Herein hunting methods employed by dogs toward Orange-footed Scrubfowl *Megapodius reinwardt* and Silver Gull *Chroicocephalus novaehollandiae* are described.

Methods

Study sites

The observations were taken from two geographically and ecologically distinct habitats: one on Warnbro Sound Beach, in south-western Australia (32°20'S, 115°44'E) and the other George Brown Darwin Botanic Gardens, in central northern Australia (12° 26' 39.34"S, 130° 50' 11.58"E). The beach observation was made (at 16:30 on February 21, 2009) while conducting a survey designed to count birds, dogs and people and note certain behaviours. The observation was noted immediately in short-hand and written up in full less than an hour later while still fresh in mind. The botanical gardens observation was made (at 15:00 on September 28, 2012) while assessing a field site and was written up in full immediately after it happened while still in the gardens and standing where the event took place.

Methods of making observations on the beach and a map of the site are given elsewhere (see Fulton 2010). The mean approach distance by dogs and humans to birds was estimated from observations while walking transects along the beach. This distance is the minimum distance between the dog and bird when the bird took flight. The distance was only recorded if the dog and bird were within 50 m of the observer and an uninterrupted view was available. The beach is approximately 9 km long.

Results/Observations

Warnbro Sound Beach dog attacking Silver Gulls

The dog positioned itself in the swash zone of the beach and used the breaking waves to launch itself at the gulls. It used the wave's energy to increase its forward momentum and speed of its final lunge at the birds. In addition, it was almost completely hidden by the white froth and turbulence of the waves even though it was a dark brown colour. It is not possible to deduce if the dog was aware of the added stealth component. It paddled immediately behind the breaking waves about five metres from the shore. Humans were present on the beach and in the water (20 on the beach and 3 in the water, within 1 km of beach). Gulls were on the beach using the wet section of sand to probe for invertebrates. Humans were not seen feeding the gulls. The dog made two successive attempts using this technique, each time the gulls were startled and the dog came within two metres of them in both attempts. After each attempt the gulls left the area. Gulls are familiar with dogs on this beach and take flight if they approach too closely; the mean minimum approach-distance given to dogs before the birds take flight is 29 m (n=5) and to humans, other than myself, the mean approach distance given is 11 m (N=23). Thus, this dog's approach to less than 2 m is markedly less than expected. The dog was with people who were not swimming, although there were swimmers in the water. While the dog did not catch a gull this is the closest I have seen a dog come to a gull or any other bird on the beach, in 650 surveys.

George Brown Darwin Botanic Gardens dog attacking scrubfowl

The dog sniffed and looked around as it ran quickly (downhill) along the dry creek bed using this same search pattern all the way. It was heard before it was seen from about 40 m away and the sounds were consistent with what I saw and heard when it came into view. The scrubfowl looked up three times, each at the same time as the sound of the dog's approach was loudest. The dog made no attempt to be quiet. The sound of the dogs approach clearly indicated that it was getting closer. The scrubfowl and I looked longer for the source of the sound as it became closer. The sound of the dog's approach was the crackle of dried vegetation on the creek bed and in particular as the dog turned at each bend. I was positioned higher than the scrubfowl by ~4 m head to head. I was positioned on a small bridge over the dry creek bed and about 5 m west of the scrubfowl, which was in a depression on the creek bed scratching the still moist ground for invertebrates. The dog approached from the east. As the dog came closer the scrubfowl put its head up from foraging at each clear noise, increasingly behaving in a more agitated fashion; turning its head to hear or see what might be approaching. I saw the dog approaching when it was 6-7 m from the bird. The bird would not have a clear line of vision till the dog was within 3 m due to a bend and the vegetation, which obscured its line of vision. It did not look as though the scrubfowl would escape so I added to the alarm by calling and gesticulating. The bird was well aware of me but had been tolerant, because I had been keeping still. Owing to my noise and gesticulations added to the noise of the oncoming dog the scrubfowl took flight and flew past me, well above my head and out of my reach, into tree foliage where I lost sight of it.

It seemed probable that the dog would have caught the scrubfowl had I not intervened. The curves or meanders of the creek with their edge vegetation provided cover for the dog to approach. Of interest is that the noise of the dogs approach didn't provoke the scrubfowl into an earlier escape flight. However, observations of these birds in the botanic gardens, over the next two days, highlighted that they were very numerous as were the dogs with seven scrubfowl and 13 dogs seen in two hours that afternoon. The scrubfowl were territorial and often made loud noises of their own either through calling and/or crashing through the vegetation when attacking each other to defend their 'garden-bed' territories. It seems possible that the scrubfowl may have thought that only another scrubfowl was approaching; a cause for concern but not a matter of life and death.

The dog's hunting strategy was to search with sight and smell and to move quickly and continuously. The dog's strategy appeared to work in this case, although had I not alarmed the scrubfowl I might be surer of this. The dog possessed a round metallic (silver coloured) tag, which was attached to its collar. It was with a human that it looked for and that it went to immediately after this incident.

Discussion

In both cases the dogs in question were healthy-looking middle-sized dogs out with their human owners. They appeared healthy and in good condition, they did not appear to need to hunt and kill for food. In both cases, the owners were aware of their dogs' behaviour and showed no reaction—providing neither positive nor negative re-enforcement to their dogs.

The observations reported here serve to highlight the variety of behaviours that can spring from a polymorphic and predatory species. This species can demonstrate a variety of hunting behaviours and thus pose a broad threat to a large variety of animals (Young *et al.* 2011). A threat that is exacerbated by the ubiquitous geographical range they now encompass due to their close association with humans (Serpell 1995). It is noteworthy that domestic dogs rarely venture onto Warnbro Beach without humans; of the dogs counted there only 1 in 3669 was not in the company of a human (Unpublished data). In three days observation in the botanical gardens, in Darwin, no unaccompanied dogs were detected. I suggest that the threat posed by dogs may be ameliorated by training—if not the dogs then the owners.

Acknowledgements

I thank Cheung Yee Wan (張議尹) for her enthusiasm and encouragement so enthusiastically provided during the field work components of this study. I thank Thomas Newsome for suggestions on improving the manuscript. I acknowledge the Nyoongar and the Larrakia people the traditional owners of the land where this study was undertaken.

References

Fulton. G. R. 2006a. Identification of nest predators with remote cameras and artificial nests in extensive old-growth woodland of southwestern Australia. *Corella* **30**(2): 35-39.

Fulton, G. R. 2006b. Direct observations of predation, nest-predation and other disturbance events, at Dryandra, in south-western Australia I: birds as predators. *Australian Field Ornithology* **23**(3): 144-151.

Fulton, G.R. 2010. Attempted kleptoparasitism by a Crested Tern on a Pied Cormorant at Warnbro Sound, south-western Australia. *Australian Field Ornithology* **27**(2): 81-84.

Hughes, J. and Macdonald, D. W. 2013. A review of the interactions between free-roaming domestic dogs and wildlife. *Biological Conservation* **157**: 341–351.

Kruuk, H. 1972. Surplus killing by carnivores. *Journal of Zoology* **166**(2): 233-244.

Ovodov, N. D., Crockford, S. J., Kuzmin, Y. V., Higham, T. M. G., Hodgins, G. W. L., Gregory, W. L. and van der Plicht, J. 2012. A 33,000-year-old incipient dog from the Altai Mountains of Siberia: Evidence of the earliest domestication disrupted by the Last Glacial Maximum. Plos ONE 6(7): e22821.

Savolainen P., Zhang, Y. P., Luo, J., Lundeberg, J. and Leitner, T. 2002. Genetic evidence for an East Asian origin of domestic dogs. *Science* **298** (5598): 1610-1613.

Serpell, J. 1995. *The Domestic Dog: Its Evolution, Behaviour and Interaction with People*. Cambridge University Press, Cambridge.

Short, J., Kinnear, J. E. and Robley, A. 2002. Surplus killing by introduced predators in Australia—evidence for ineffective anti-predator adaptations in native prey species? *Biological Conservation* **103**(3): 283-301.

Spady, T. C. and Ostrander, E. A. 2008. Canine Behavioral Genetics: Pointing Out the Phenotypes and Herding up the Genes. *American Journal of Human Genetics* **82**(1): 10-8.

Young, J. K., Olson, K. A., Reading, R. P., Amgalanbaatar, S. and Berger, J. 2011. Is wildlife going to the dogs? Impacts of feral and free-roaming dogs on wildlife populations. *BioScience* **61**(2): 125-132.